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October 20, 1997

Dr. David Werdegarr, Director
Office of Statewide Health Planning and Development
Office of the Director
1600 9th St., Room 433
Sacramento, Ca. 95814

Dear Dr. Werdegarr:

The Kaiser Permanente Medical Care Program, and The Permanente Medical Group, would like to thank the Office of Statewide Health Planning and Development (OSHPD) for giving us this opportunity to comment on the latest release of OSHPD's Acute Myocardial Infarction (AMI) Mortality Report. KPNCR has made improving the quality of care for AMIs a goal for every facility and employee. To give one example, our Santa Clara hospital has made a number of changes in care, including implementing a Thrombolytic Protocol, collecting data prospectively on AMIs, making cardiologists the primary attending physician for AMI patients, improving the documentation of care and opening a Chest Pain Center for rapid evaluation of patients with Chest Pain.

We applaud the effort by OSHPD to measure hospital quality and are pleased that our San Francisco, Walnut Creek and Santa Rosa hospitals earned stars on this report. However, we continue to have concerns about this analysis. We would like to discuss timeliness, trending, validity, and future efforts in regard to this report.

First, hospitals need timely data. In the past few years mortality post-AMI has decreased significantly. This latest report (1991-1993) is too old to be useful for improving quality of care. We are currently calculating statewide mortality on 1995 data to meet our clinicians' need for more timely data.

Secondly, this report included deaths that occurred post hospital discharge. We do not think this expansion is particularly useful for AMI mortality. We would have preferred the same AMI mortality measure to allow for trending.

Thirdly, two-thirds of this data was reported on in earlier versions of this report, but the time periods were slightly different in the different versions. Reports with slightly different time periods make it difficult to compare the results from the old and new model for validation. Our rough comparison found substantial variation, a difference of up to 9%, between the different models. Which result should be believed?



Risk factors such as coma and epilepsy have very large coefficients in these models. This suggests the AMI may have been the immediate cause of a death which was long expected due to other conditions. Similarly, some patients with malignancies are included as AMI deaths. These cases should be excluded from the analysis since these deaths do not represent poor quality hospital care. Also, the diskettes for all KPNCR hospitals contained *no values at all for SEPSIS*. Is this an error in the spreadsheets or in the model?

The attached chart shows observed, expected and risk-adjusted mortality rates for the KPNCR hospitals and the statewide average. The first bars represent observed AMI mortality rates, the lighter bars expected mortality rates, and the line graph the risk adjusted mortality rates for the 1991-1993 period. The first point demonstrated by this table is that *all of KPNCR hospitals had observed AMI mortality rates lower than the state rate*, shown at the far right of the chart. The Kaiser Foundation Hospital in Santa Teresa's observed AMI mortality rate was over 2 percentage points lower than the state average. The chart shows that this hospital's observed mortality rate was very comparable to other hospitals, but its *expected mortality was much lower than most of the other hospitals and the statewide average*. This made the risk-adjusted rate very high for this hospital. The question is, were the patients at Santa Teresa really so low risk, or does the data for Santa Teresa incorrectly make them appear low risk due to incomplete data?

Dr. Ethan Daniels, a cardiologist at Santa Teresa, reviewed 21 cases of "AMI deaths" as defined by OSHPD's study for 1993. Of the 22 cases that were classified as such, 21 hospital charts were reviewed and the emergency room/EMS records, history and physical dictations, nursing notes and laboratory data/testing served as the primary source of information. In four cases the patient had no evidence of myocardial infarct and died as a result of other causes, and the other cases concern additional co-morbid conditions and circumstances that were not coded originally. His findings are summarized below.

CASES INCORRECTLY CODED AS MYOCARDIAL INFARCTIONS

Patient 342: Patient with known CAD, seen in ER with wide-complex tachycardia and demise. The ejection fraction was at or less than 20%, and the patient died of ventilatory failure. In review it was clear that the patient had long-standing heart and lung problems, and did not suffer a myocardial infarction. (Peak M:B fraction less than 6%, under 20 units), and had no symptoms or significant EKG findings to suggest that a myocardial infarction was the cause of the presentation or the reason for the death. Though this case was coded as an MI who died in the hospital, *no risk factors at all were listed in the OSHPD data for this patient, not even congestive heart failure the second diagnosis*.

Patient 349: Patient was admitted in a full-code state after 40 minute down-time. There was no increase in M:B CPK or any significant EKG finding to suggest that the patient suffered an MI. The patient was then allowed to die because of non-recovery from the prolonged event.

Patient 345: Patient admitted after full arrest in field. Marked increase in CPK but no significant M:B fraction (less than 1%.) EKG did not support the diagnosis of acute myocardial infarction.

Patient 386: The patient presented in the ER in extremis and over the initial part of the hospitalization developed an extremely dense CVA, which eventually lead to the patients' demise. Again, EKG findings and cardiac enzyme reports do not support the diagnosis of acute MI as the cause of admission or demise.

CASES LACKING CODING OF RISK FACTOR CONDITIONS

Patient 336: Add: Pulmonary Edema

Patient 348: Add: Congestive Heart Failure, Pulmonary Edema, Anterior MI, Hypertension

Patient 357: Add: Anterior MI, Acute Renal Failure (No urine output) Patient had diabetes in hospital, unsure if present long-time.

Patient 404 : Add: Diabetes Chronic Renal Failure

Patient 308: Add: Diabetes, Hypertension, Acute Renal Failure

Patient 410 Add: Diabetes, Chronic Renal Failure

Patient 335: Add: Ventricular Tachycardia

Patient 378: Add: Diabetes, Chronic Renal Failure

Patient 325: Add: Central Nervous System Disorder (dementia) Also, this patient was in the terminal phase of illness.

Patient 372: Add: Coma, Diabetes

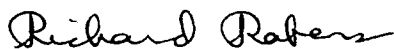
Patient 430 : Add: Shock, Coma

The above cases vividly illustrate the serious problem inherent in using old data collected for administrative purposes to assess quality of hospital care. When this data was collected in 1991 - 1993, hospitals were not careful that the data were 100% complete because there was no real incentive to do so. Review of some of these cases has found that risk factors were not always coded, and some patients included in the study were terminally ill prior to the AMI.

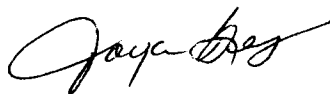
In recent years KPNCR has undertaken a major effort to correct and improve the documentation and coding of all of our data. We feel confident that current data are much more reliable than data from the early 1990's. The release of the earlier hospital outcome report may have stimulated similar efforts in other hospitals. Because problems with incomplete data will always limit the validity of reports on data from the early 1990's, we urge OSHPD to put more effort into ensuring that current hospital discharge data is of higher quality, and *to jump to 1996 data for the next report, to make it more timely and of better quality.*

Finally, though this is the Hospital Outcomes Project, we suggest that OSHPD consider reporting on some *process* measures of quality. For example, numerous studies have shown that quick delivery of thrombolytics is an important predictor of survival post-AMI. This was also a recommended measure from the Clinical Panel OSHPD convened last year. This would make a strong process measure of quality, even if done only on a sample of cases. It doesn't have all the risk adjustment problems that outcome studies do. It would also have a clear link to quality improvement.

Sincerely,



Richard Rabens, M.D., Director
Department of Quality and Utilization
The Permanente Medical Group



Joyce Berger
Sr. Vice President, Operations
Kaiser Foundation Health Plan
and Hospitals

Observed, Expected and Risk Adjusted AMI Mortality Rates

